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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Shigeru Hosoe

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10/31/2007

FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER  
LLP

901 NEW YORK AVENUE, NW  
WASHINGTON, DC 20001-4413

EXAMINER

WOLLSCHLAGER, JEFFREY MICHAEL

ART UNIT

PAPER NUMBER

1791

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/721,547	HOSOE, SHIGERU	
	<b>Examiner</b>	<b>Art Unit</b>	
	Jeff Wollschlager	1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 18 July 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,2,5-9,11-16,18-24 and 26-31 is/are pending in the application.
- 4a) Of the above claim(s) 2,11-14,20-22 and 29-31 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,5-9,15,16,18,19,23,24 and 26-28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☒ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Response to Amendment***

Applicant's amendment to the claims filed July 18, 2007 has been entered. Claims 1, 5, 6, 8, 9, 15, 16, 18, 19 and 26 are currently amended. Claims 3, 4, 10, 17, and 25 have been canceled. Claims 1, 5-9, 15, 16, 18, 19, 23, 24 and 26-28 are under examination.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1, 5-9, 15, 16, 18, 19, 23, 24 and 26-28 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Regarding claim 1, the limitation "larger than...Hv 1000" does not appear to be supported by the original disclosure. While "not smaller than...Hv 1000" is supported by the original disclosure, there does not appear to be support to exclude a hardness of Hv 1000. Additionally, the limitation "cut the material with a cutting-in depth of 1 um or less" does not appear to be supported by the original disclosure. It is unclear to the examiner where requiring the depth of the cut of the material to be 1 um or less is supported because the term "critical cutting-in depth" does not make it clear that it is the depth to actually cut the material. Further, even if "critical cutting-in depth" does provide support for the actual depth of the cut, it is unclear where limiting the depth to less than 1 um is supported in the original

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disclosure. This rejection may be overcome by pointing to the location within the specification where support for the limitations may be found.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 5, 7, 23, 24, 26 and 27 are rejected under 35 U.S.C. 103(a) as being obvious over Umetani et al. (US 5,171,348) in view of Roffman et al. (US 5,861,114).

Regarding claims 1 and 7, Umetani et al. teach a method of forming a die for press-molding an optical element wherein the die comprises a base material that is roughly machined/cut and a layer of Ni-P or Ni-B that is cut into a desired shape. The hardness of the Ni-P and Ni-B material ranges from a Vickers Hv of 500-1000 (Table 2; col. 1, lines 15-48; col. 2, lines 8-21; col. 3, lines 1-24; col. 4, lines 6-55). The Ni-P or Ni-B layer is applied to the base material to a thickness of 5 um and is then cut to form the desired optical die surface (col. 5, lines 48-54). Regarding the hardness being larger than Hv 1000 and the teaching of Umetani et

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al. of a hardness up to Hv1000, the examiner submits that at the lower end of the claimed range, the values are close enough that one having ordinary skill would have expected them to have substantially the same properties and processability (MPEP 2144.05).

Umetani et al. do not teach cutting in to a depth of less than 1  $\mu\text{m}$  with a single point cutting tool. However, Roffman et al. teach a method of cutting dies/molds for forming complex optical surfaces wherein a single point diamond lathe having submicron precision and repeatability is employed (Abstract; col. 2, lines 47-67; col. 3, lines 8-29; col. 7, lines 52-67; col. 8, lines 28-35; col. 24, lines 55-col. 25, line 15; col. 32, lines 9-27). Further the examiner notes that the depth of cut of the Ni-P or Ni-B layer is intrinsically less than 5  $\mu\text{m}$  as that is the starting thickness of the film. One having ordinary skill would have readily determined and optimized, in view of the combination with Roffman et al., how deep to cut into the Ni-P layer of Umetani et al. to achieve the desired optical surface (Umetani et al: col. 11, lines 28-32).

Therefore it would have been *prima facie* obvious to one having ordinary skill in the art at the time of the claimed invention to have modified the teaching of Umetani et al. and to have employed the single point cutting tool/lathe disclosed by Roffman et al. and to have cut into the layer to a depth of 1  $\mu\text{m}$  or less, for the purpose, as suggested by Roffman et al., of producing a desired optical surface having submicron precision and accuracy while minimizing the amount of material to be cut.

As to claim 5, Umetani et al. disclose an aspherical surface (col. 1, lines 15-20)

As to claim 23, Roffman et al. disclose forming a soft/plastic contact lens (Abstract; col. 2, lines 4-9).

As to claim 24, Umetani et al. disclose forming a glass optical element (col. 1, lines 15-20).

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As to claims 26 and 27, a variety of base and intermediate materials are disclosed by Umetani et al., including silicon carbide (col. 2, lines 6-20).

Claims 1, 23, 24 and 26-28 are rejected under 35 U.S.C. 103(a) as being obvious over Uno et al. (US 5,008,002) in view of Roffman et al. (US 5,861,114).

Regarding claims 1 and 26-28, Uno et al. disclose a method of producing a mold for obtaining glass articles comprising cutting a base mold of sintered silicon carbide (SiC) (Figure 2; col. 1, lines 6-33; col. 4, lines 34-42); coating the base mold with a CVD deposited SiC film (col. 2, lines 52-67) and cutting to obtain a mirror surface (col. 4, lines 39-42) and depositing an i-carbon film on the SiC film (col. 5, lines 44-50). Uno et al. do not teach how deep the cut is into the SiC film or that the cut is made with a single point cutting tool.

However, Roffman et al. teach a method of cutting dies/molds for forming complex optical surfaces wherein a single point diamond lathe having submicron precision and repeatability is employed (Abstract; col. 2, lines 47-67; col. 3, lines 8-29; col. 7, lines 52-67; col. 8, lines 28-35; col. 24, lines 55-col. 25, line 15; col. 32, lines 9-27).

Therefore it would have been *prima facie* obvious to one having ordinary skill in the art at the time of the claimed invention to have modified the teaching of Uno et al. and to have employed the single point cutting tool/lathe disclosed by Roffman et al. and to have cut into the layer to a depth of 1 um or less, for the purpose, as suggested by Roffman et al., of producing a desired optical surface having submicron precision and accuracy while minimizing the amount of material to be cut.

As to claim 23, Roffman et al. disclose forming a soft/plastic contact lens (Abstract; col. 2, lines 4-9).

As to claim 24, Uno et al. disclose forming a glass lens (Abstract).

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Claim 6 is rejected under 35 U.S.C. 103(a) as being obvious over Umetani et al. (US 5,171,348) in view of Roffman et al. (US 5,861,114), as applied to claims 1, 5, 7, 23, 24 and 26-28 above, and further in view of Border et al. (US 2003/0127759).

As to claim 6, the combination teaches the method as set forth above. Umetani et al. do not teach the diameter of the die/optical element is less than 5 mm. However, Border et al. teach that it is known in the art to make microlens molds having diameters down to the micron sized range (paragraph [0005, 0049]).

Therefore it would have been *prima facie* obvious to one having ordinary skill in the art at the time of the claimed invention to have modified the size of the diameter of the die employed by Umetani et al., to a size of less than 5 mm as suggested by Border et al., for the purpose of producing a variety of different optical elements for various applications as is routinely practiced in the art.

Claims 8, 9, 15, 16, 18, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Umetani et al. (U.S. 5,171,348) in view of Roffman et al. (US 5,861,114), as applied to claims 1, 5, 7, 23, 24 and 26-28 above, and further in view of Yoshihiro et al. (U.S. 6,913,424).

As to claims 8, 9, 15 and 16, the combination teaches the method as set forth above. Umetani et al. do not teach controlling the cutting relative to the orientation of the diamond and controlling the rake angle as claimed. However, Yoshiro et al. disclose controlling the cutting relative to the orientation of the diamond and controlling the rake angle (col. 3, lines 5-8; col. 4, lines 35-47).

Therefore it would have been *prima facie* obvious to one having ordinary skill in the art at the time of the claimed invention to have employed the cutting method disclosed by Mizutani et

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al. or Yoshihiro et al. to cut the die produced by Umetani et al. for the purpose of improving the quality and productivity of the cutting process, as is routinely practiced in the art.

As to claims 18 and 19, Yoshiro et al.'s (Abstract) machine is high precision and adjustable. Further, the machining equipment employed by Roffman et al. has submicron precision and repeatability (Abstract; col. 24, lines 55-64).

### ***Response to Arguments***

Applicant's arguments filed July 18, 2007 have been considered, but are moot in view of the new grounds of rejection.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.



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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff Wollschlager whose telephone number is 571-272-8937. The examiner can normally be reached on Monday - Thursday 7:00 - 4:45, alternating Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on 571-272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JW

Jeff Wollschlager  
Examiner  
Art Unit 1791

October 29, 2007

af  
CHRISTINA JOHNSON  
SUPERVISORY PATENT EXAMINER